

What is claimed is:

- 1 1. Apparatus for adjusting exhaust flow in a hot plate apparatus, comprising:
2 a programmable exhaust control regulator generating a first input signal to a motor
3 control circuit;
4 an exhaust flow meter generating a second input signal to the motor control circuit; and
5 a motor driven control valve moved to different positions according to the first and
6 second input signals, the control valve being installed in an exhaust portion of the hot plate
7 apparatus.
- 1 2. The apparatus as in claim 1, further comprising:
2 the regulator having an upper limit set below an exhaust flow that would tend to lift a
3 semiconductor wafer in the hot plate apparatus.
- 1 3. The apparatus as in claim 1, further comprising:
2 the regulator having a preset high exhaust flow for operation at an end of a heating cycle
3 to clean particles from an interior of the hot plate apparatus.
- 1 4. The apparatus as in claim 1, further comprising:
2 the exhaust portion of the hot plate apparatus being an exhaust conduit communicating
3 with a manifold of a central exhaust conduit.
- 1 5. The apparatus as in claim 1, further comprising:
2 the exhaust portion of the hot plate apparatus being an exhaust conduit communicating
3 with a manifold of a central exhaust conduit;
4 another hot plate apparatus having an exhaust conduit communicating with the manifold;
5 another flow control valve in the corresponding exhaust conduit; and
6 another flow meter in the corresponding exhaust conduit.
- 1 6. A method of controlling a thickness and a surface profile of a photo resist layer,
2 comprising the steps of;

3 providing a manufacturing recipe of the of a photo resist material with an exhaust flow
4 value of a PEB apparatus, and
5 controlling the exhaust flow of the PEB apparatus to the exhaust flow value while the
6 photo resist material is heated in the PEB apparatus to a solidified photo resist layer of controlled
7 thickness and surface profile.

1 7. The method as in claim 6, further comprising the step of: varying the exhaust flow with a
2 control valve.

1 8. The method as in claim 6, further comprising the steps of:
2 varying the exhaust flow with a control valve; and
3 varying the control valve with a motor.

1 9. The method as in claim 6, further comprising the steps of:
2 varying the exhaust flow with a control valve;
3 varying the control valve with a motor;
4 driving the motor with a motor drive circuit; and
5 providing a first input signal to drive the motor.

1 10. The method as in claim 6, further comprising the steps of:
2 varying the exhaust flow with a control valve;
3 varying the control valve with a motor;
4 driving the motor with a motor drive circuit;
5 providing a first input signal to drive the motor; and
6 providing a second refined input signal to drive the motor.

1 11. A method of cleaning a chamber of a hot plate apparatus, comprising the steps of:
2 controlling the exhaust flow of the PEB apparatus to the exhaust flow value while the
3 photo resist material is heated in the PEB apparatus to a solidified photo resist layer; and
4 increasing the exhaust flow to clean the chamber.

1 12. The method as in claim 11, further comprising the step of: varying the exhaust flow with
2 a control valve.

1 13. The method as in claim 11, further comprising the steps of:
2 varying the exhaust flow with a control valve; and
3 varying the control valve with a motor.

1 14. The method as in claim 11, further comprising the steps of:
2 varying the exhaust flow with a control valve;
3 varying the control valve with a motor;
4 driving the motor with a motor drive circuit; and
5 providing a first input signal to drive the motor.

1 15. The method as in claim 11, further comprising the steps of:
2 varying the exhaust flow with a control valve;
3 varying the control valve with a motor;
4 driving the motor with a motor drive circuit;
5 providing a first input signal to drive the motor; and
6 providing a second refined input signal to drive the motor.